Montana Fish, Wildlife & Parks

ENVIRONMENTAL ASSESSMENT AND DECISION NOTICE FOR THE JUMPING CREEK WESTSLOPE CUTTHROAT TROUT REHABILITATION PROJECT

August 1, 2008

Project Proposal and Justification:

The westslope cutthroat trout (WCT -*Oncorhynchus clarkii lewisi*) is ranked as S2 (imperiled because of rarity or because of other factors demonstrably making it very vulnerable to extinction throughout its range) by the Natural Heritage Network and the State of Montana. Genetically pure WCT occupy about 8% of their historical range in the western United States and less than 4% of their historical range in northcentral Montana within the Missouri River Drainage. The Smith River Drainage in Montana currently supports four populations of non-hybridized WCT in a total of less than five miles of stream (less than 1% of historical habitat).

Major threats to WCT include competition and hybridization with non-native rainbow trout, competition with brook trout, and isolation of remaining pure populations above barriers in short headwater sections of stream. The smallest isolated populations are at risk of extinction from catastrophic events (e.g. fire, drought) and may eventually suffer negative consequences of genetic inbreeding.

In 2001, a small remnant population of westslope cutthroat trout was discovered in upper Jumping Creek. Genetic analysis of fin clips taken from Jumping Creek fish in 2001, 2004, and 2005 indicated these fish were not hybridized with rainbow trout (Oncorhynchus mykiss). However, the total population size of WCT in Jumping Creek had been reduced to near extinction because of competition with non-native eastern brook trout (Salvelinus fontinalis). Estimates obtained during suppression efforts indicate no more than 100 WCT remain in Jumping Creek. Brook trout were suppressed over the past three years with electrofishing equipment (Environmental Assessment and Record of Decision completed in 2005) to try to buoy the WCT population until a more permanent restoration solution could be developed. In 2006, a potential fish barrier site was located 2.5 miles downstream from the headwaters of Jumping Creek. A permanent falls barrier was constructed (blasting of bedrock) at this site in 2007. Prior to piscicide treatment, WCT will be captured and transferred to a separate and remote drainage (a separate EA has been completed for this transfer). WCT will be transferred back to Jumping Creek using eyed eggs in 2009 or 2010 after the complete removal of non-native brook trout.

Under this proposal, non-native fishes in Jumping Creek would be removed using EPA registered piscicides containing rotenone. The project would occur during summer or early fall of 2008 and 2009. At least two treatments would be necessary to ensure complete eradication of non-native fishes. Rotenone degrades quickly in streams and typically persists for less than 14 days. Piscicides would be neutralized after passage over the constructed barrier by application of potassium permanganate at 1-6 ppm. The concentration of potassium permanganate necessary for neutralization would be determined through bioassays completed prior to treatment and according to piscicide label recommendations.

This project is intended to increase the amount of stream occupied by genetically pure WCT (an increase of approximately 30 percent in the Smith River Drainage). If implemented as proposed, this project would protect and expand a unique pure population of westslope cutthroat trout and lower the overall risk of extinction of westslope cutthroat trout in the Smith River Drainage. This project would also help achieve the goal and objectives listed in the statewide Conservation Agreement (2007) for the restoration of westslope cutthroat trout. Projects which restore WCT to their historical habitat would help prevent future listing under the Endangered Species Act and potential imposition of federal regulatory restrictions. This project would also provide a unique opportunity for anglers to fish for native trout in an accessible area of Lewis and Clark National Forest. The restored WCT population would eventually attain similar population densities and potentially larger adult sizes than the present brook trout fishery. WCT regulations are currently catch and release only. In future, total population numbers may support a change from catch and release only to some level of harvest.

Environmental and Social Impacts of Project:

Rotenone is a naturally occurring substance derived from the roots of several tropical and sub-tropical plants in the bean family. All piscicides kill through biochemical processes at the cellular level which make it impossible for the fish to use oxygen absorbed in the blood and needed in the release of energy during cellular respiration. Rotenone naturally degrades within 1- 8 weeks through hydrolysis and exposure to sunlight (likely less than two weeks in this application). To help ensure that aquatic life and water quality downstream of Jumping Creek would not be affected, rotenone would be neutralized with potassium permanganate shortly after it passes the man-made falls fish barrier (located 3.25 miles upstream from the confluence with Sheep Creek). FWP expects the impacts to non target invertebrates within the project area to be minimal with ample source areas for re-colonization of gill breathing invertebrates lost during the treatment. FWP also expects minimal impacts to amphibians and reptiles as a result of this project by implementing the project when larval life stages are less likely to be present in the area. FWP expects this project to have little or no adverse effect on mammals or birds that use the area. Ample research has shown that rotenone is not toxic to mammals and birds at the fish killing concentrations that will be used for this project. This project is also not likely to cause displacement of local populations of birds or mammals. Project

personnel activity on Jumping Creek during the project will be higher than existing recreational use during treatment (approximately one week). The risk that rotenone will enter and be mobile in groundwater is minimal. Tests have shown that rotenone does not transport through sediments. Although there are no domestic wells located within the project area, water users downstream in Jumping Creek were notified of this project. FWP will follow the manufacturer's label recommendations that advise using sentinel fish (brook trout in this case) to ensure the product has adequately degraded prior to re-stocking of cutthroat trout or cessation of potassium permanganate detoxification. Risks to applicators are substantially greater than risks to the general public because of the necessity of handling the compounds at full strength. Measures to reduce risks to applicators include training in the proper handling of piscicides, and the use of safety equipment listed on the product labels such as respirators, goggles, and gloves. At least one, and most likely several, Montana Department of Agriculture certified pesticide applicator(s) would supervise and administer the project. Rotenone and potassium permanganate would be transported, handled, applied, and stored according to the label specifications to reduce the probability of human exposure or spill. Health risk to project personnel will be minimized through the use of proper planning, preparation, and the use of personal protective gear.

Public Involvement:

In compliance with the Montana Environmental Policy Act, an environmental assessment was prepared and circulated for public comment from June 24 July 31, 2008. Notices were advertised in the Great Falls Tribune and numerous other local papers including The Sun which is distributed to 22 rural communities. A scoping letter, which included a project summary and area map was mailed to 46 local landowners, conservation groups, non-governmental, and government organizations. In addition, a meeting was held with the downstream landowners prior to drafting of the EA. Copies of the EA were made available at the state library in Helena, the FWP Region 4 headquarters in Great Falls, and the FWP internet web site. Two comment letters were received during the comment period. The following are responses to those public comments.

Citizen comment letter made on 7/24/08 (Excerpts from comment letter in bolded text):

Rotenone is not just a derivative of a South American root. The rotenone formulas used in Montana are potentially hazardous to humans. One rotenone formula, CFT Legumine, contains just 5% rotenone as an active ingredient, 5% other resins, and 90% inert ingredients, including N-

Methylpyrrolidone. If you look at the Material Safety Data Sheet (MSDS) I have attached, you will see that on the last page, under "Regulatory Information", N-Methylpyrrolidone is listed as causing a Severe Health effect and is known to cause cancer or birth defects, or other reproductive harm. Another formula, Prenfish, contains 9.9% Naphthalene, which is a suspected carcinogen. Are these the chemicals we want to put in our national forest and wilderness water systems?

One of the piscicides proposed for use in this treatment, CFT Legumine, does contain N-Methylpyrrolidone. For certain formulations, emulsifiers and solvents are used to extract the active ingredient rotenone from the derris root and maintain its solubility. The use of these compounds may result in inert ingredients and impurities that have strong chemical odors and may pose risks to human health and the environment. Assessments of the toxicity of pesticide products must consider both active and inert ingredients. As part of the product-specific data call-in process for reregistration of piscicides, the applicant must submit an updated confidential statement of formula (CSF) for each rotenone product. CSFs must quantify all inert ingredients and impurities >0.1%. If appropriate, EPA takes additional steps to address risks of concern from inert ingredients and impurities (see 40 CFR 158.155). Both of the rotenone products that may be used in this project are EPA registered piscicides and have undergone this process. The label guidelines for application will be followed and the lowest concentration of rotenone that will be effective at removing the target species while minimizing adverse effects to all other non-target species and the environment will be applied. We anticipate that none of these inert constituents will be present at levels that are expected to have an effect on animal life.

N-Methylpyrrolidone is also commonly used in consumer products including fuel system cleaners, paints, and herbicides for domestic use. The National Library of Medicine Hazardous Substances Databank described the aquatic fate for much higher concentrations of N-Methylpyrrolidone released into water than would be use in this project; it is not expected to adsorb to suspended solids and sediment in the water column and undergoes biodegradation in aqueous environments, and the potential for bioconcentration in aquatic organisms is low. In addition, LD 50 values listed in the same database for non-human dermal and oral exposure are in the thousands of milligrams per kg range, far higher than levels of exposure in this treatment.

An additional point of clarification needs to be made in regards to this comment. The project area is located on National Forest Lands administered by the Lewis & Clark Forest. However, none of the project area is located in or close to a wilderness area or proposed wilderness study area. The Jumping Creek drainage as well as neighboring drainages include substantive road systems.

… there is a growing body of research which specifically uses rotenone as a major tool to induce Parkinson's disease (just type rotenone and Parkinson's in Google scholar). I strongly believe that the effects of rotenone need to be thoroughly investigated using the current science of toxicology before putting it in our national forest and wilderness water

systems. The National Institute of Health (NIH) is currently conducting studies to evaluate the relationship between rotenone exposure and Parkinson's disease in humans. We need to let them finish this research.

Response (taken from Rotenone Stewardship Program; http://www.fisheries.org/units/rotenone/index.htm) :

“Emory University (Atlanta, Georgia) conducted a study that demonstrated that rotenone produced Parkinson's-like anatomical, neurochemical, and behavioral symptoms in laboratory rats when administered chronically and intravenously (Betarbet et al. 2000). In this study, 25 rats were continuously exposed for 5 weeks to 2 to 3 mg rotenone (dissolved in dimethyl sulfoxide [DMSO] and polyethylene glycol [PEG]) per kg body weight per day. The exposure was accomplished by injecting the mixture directly into the right jugular vein of the rats using an osmotic pump. Twelve of the 25 rats developed lesions characteristic of Parkinson's disease. Structures similar to Lewy bodies (microscopic protein deposits) in the neurons of the substantia nigra in the brain (characteristic of Parkinson's disease) were produced in several of the rotenone-exposed rats.

The manner that rotenone was administered to the laboratory rats was highly unnatural. Not only was it administered by continuous jugular vein infusion, it was mixed with DMSO and PEG. DMSO enhances tissue penetration of many chemicals (Dr. Peter Kurtz, M.D., California Department of Food and Agriculture, personal communication) The normal exposure to rotenone in humans from its use in fisheries management would be ingestion, inhalation or through the skin. Direct injection is the fastest way to deliver chemicals to the body, as evidenced in intravenous application of medicines. Continuous intravenous injection, as done in this study, also leads to continuously high levels of the chemical in the bloodstream. Normal ingestion, inhalation, and dermal exposures significantly slow down the introduction of chemicals into the bloodstream. Administering any chemical directly into living tissues can have grave consequences. For example, sodium chloride (table salt) administered to developing chick embryos causes birth defects (Dr. P. Kurtz, M.D., California Department of Food and Agriculture, personal communication). However, this model has no practical predictive value for humans ingesting salt. Similarly, penicillin injected into the brain of cats induces seizures, but this does not suggest that ingestion will cause similar effects in humans.

Likewise, the method of exposure in the Emory University study cannot be used as a model for any form of rotenone exposure in fisheries management. Rotenone exposure in the environment is extremely limited. Rotenone is very unstable in the environment (half-life measured in days), is oxidized (neutralized) through enzymatic action in the gut of mammals and birds, is metabolized to very polar (water soluble) compounds in the body, and these compounds are excreted by the liver and kidney (Finlayson et al. 2000). Because of the rapid metabolism and clearance in mammals and birds, it is not likely that rotenone could reach the site of action in the substantia nigra in the brain where the dopamine is formed. Rotenone is toxic to fish because it is taken up rapidly across the gills and gets directly into the bloodstream, thus, bypassing the gut. Rotenone is considered

safe for the environment because it loses all its toxicity in a few days. In fact, it is significant that the Emory University investigators could not administer rotenone in any other manner except intravenously and get delivery of rotenone to the brain; otherwise, rotenone would have been neutralized in the gut and liver.

Exposure to applicators applying rotenone in fisheries management is further minimized through the use of protective equipment such as air-purifying respirators, protective clothing (coveralls, gloves), and eye protection (splash goggles or face shields) that are required on the product labels (Finlayson et al. 2000). Specific information on proper handling procedures and protective equipment are found on rotenone labels.

The results from a chronic feeding study with rats using rotenone found no Parkinson's- like anatomical or behavioral symptoms (Marking 1988). In this 24-month chronic feeding study, rotenone was orally administered to 320 rats in doses up to 75 mg/kg per day. All surviving animals were sacrificed and tissues and organs of all test animals were examined macroscopically and microscopically. The brain was sectioned, and microscopic examinations of the basal ganglia, frontal cortex, occipital cortex, thalamus, and cerebellum were completed. No changes were observed in the brain of these rotenone-exposed rats. It is significant that these rats were exposed to up 30 times more rotenone (2.5 versus 75 mg/kg/day) for 21 times longer (5 versus 104 weeks) than the rats used in the Emory University study."

Rotenone does not just target fish. Many other species live in and around aquatic environments and all organisms that can breathe in water are wiped out when they come in contact with rotenone. Colonization may occur in a post-rotenone environment,; however, the species composition will be affected. This is basic ecology. The idea is supported by research from as far back as 1966 when E.O. Wilson fumigated a small island and studied the species composition of returning organisms. He found that the species number did not change significantly, but the species composition was greatly altered.

Gill breathing invertebrates would be impacted by the treatment. In general, most common aquatic invertebrates are less sensitive than fish to rotenone and snails and clams are quite tolerant. However, aquatic invertebrate communities are very resilient to disturbance, both natural (e.g. flood, fire) and human caused. In this instance colonization sources are adjacent to the treated length of Jumping Creek. Untreated upstream sources and downstream sources will help treated reaches recolonize rapidly through invertebrate drift and aerial dispersion of adult stages. The nearness of re-colonizing species in Jumping Creek makes comparisons to E.O. Wilson's island work tenuous at best. In addition, species composition of invertebrates in pristine environments will change significantly after natural disturbance such as fire (see. Mihuc, T. B., and G. W. Minshall. 2005. The trophic basis of reference and post-fire stream food webs 10 years after wildfire in Yellowstone National Park. Aquatic Sciences 67:541-548.).

This type of research is far from exhaustive in studies of rotenone, as baseline studies are often not performed or the research is severely out-dated or geographically insignificant. Even if baseline studies are done, most studies only catalog invertebrates down to order or family level, never to the species level is (this sort of like saying, in fish there are Trout, rather than Cutthroat, Rainbow or Brook Trout).

In northcentral Montana, aquatic invertebrates are routinely collected prior to transfers of genetically unaltered westslope cutthroat trout to fishless habitat (Petty Creek, N. Fk. Ford Creek, Lonesome Creek, etc.). In every case that invertebrates were collected (many identified to species) no rare or endangered species were discovered (Daniel Gustafson pers comm.) that would preclude the transfer of a new predating species. These collections, in high elevation, remote stream reaches, indicate that the probability of removing a rare or endangered species in lower elevation less remote areas (such as Jumping Creek) are low.

This lack of identification is in part due to the cost associated with doing so, as many insects are hard to identify to species level in the field. Many of the insect species in our remote wilderness areas have not, in fact, been catalogued.

This comment is inaccurate. (Daniel Gustafson, Montana State University) has catalogued invertebrate richness at over 400 sites throughout the intermountain west including remote areas.

…It seems a real shame to eliminate them at this stage in order to restore one fish species.

Westslope cutthroat trout (*Oncorhynchus clarki lewisi*) is considered one species. However, genetic research (see Allendorf, F. W. and R. F. Leary. 1988. Conservation and distribution of genetic variation in a polytypic species, the cutthroat trout. Conservation Biology. 2 (2):170-184.) has shown that “much of the genetic variation within the west-slope cutthroat trout (*S. c. lewisi*) results from alleles found in only one or two local populations, but they often occur at high frequencies in those populations. Thus, preserving the genetic variation in westslope cutthroat trout entails preserving as many local populations as possible.” Jumping Creek is one of five populations of genetically unaltered westslope cutthroat trout remaining in the Smith River drainage. Preserving these rare fish and their natal habitat is a priority and necessary to prevent extinction and the loss potentially rare adaptations.

Research by entomologist Nancy Erman at UC Davis shows that stoneflies and other invertebrates are impacted by rotenone treatments over the long-term.

Research presented by Nancy Erman of impacts of rotenone span no more than 5 years. We accept the fact that over the period of 5 years there may be some impacts on species composition and biomass. The small size of the treatment (2.5 Miles of stream) and the proximity of source areas should aid in rapid recovery of the Jumping Creek aquatic community. In addition, we do not consider 5 years to be long term. In the case of westslope cutthroat trout restoration, long-term survival of individual populations is considered to be 50 to 100 years. Long-term survival of multi voltine species of invertebrates could be considered to be in the 20 to 30 year range. Other case studies provide contrasting conclusions to the UC Davis research. Case studies such as that conducted on Devine Lake in the Bob Marshall Wilderness from 1994-1996 (Rumsey et al. 1997) indicate that following a rotenone treatment, invertebrates actually increased in number and, very slightly, increased in diversity.

Rotenone does kill amphibians. I have seen this with my own eyes both in the US and in South America. Amphibians, especially frogs, have suffered declines throughout the world. Although the cause of these declines has not been determined conclusively, it is likely that a mixture of climate change, habitat loss, parasitism and pesticides are prime candidates. These causes of decline are hard to control, however the use of rotenone is one agent we could control.

As stated in the EA "Jumping Creek supports a robust population of Columbia spotted frogs (Rana luteiventris). Other amphibian species which may be present in the project area are boreal toads (Bufo boreas), boreal chorus frogs (Pseudacris maculata), and tiger salamanders (Ambystoma tigrinum).

Rotenone can be toxic to some gill-breathing larval amphibians, but is not harmful to adults, except tiger salamanders (Schnick 1974). Grisak et al. (2007) found a no effect level for adult spotted frogs of 4.5 ppm Prenfish™ (rotenone) and 50% of long toed salamander adults died after 96-h exposure to <3.5 ppm Prenfish™ (rotenone).

All of the amphibian species that could be present in the project area prefer to breed in the standing water of ponds, rather than in streams. The areas where rotenone use is proposed in this project are primarily running water. Also, most amphibian larvae (tadpoles) would have already undergone metamorphosis to the less vulnerable adult stage when the proposed stream treatment would occur."

As stated, climate change, habitat loss, parasitism, and pesticides all combine to cause decline in amphibian numbers. This project may have a negative impact on amphibians over the short term. Amphibians will naturally re-colonize the treated reach from adjacent or downstream areas after degradation of rotenone.

When I was a biologist in South America, I came across native people using the Barbasco root to kill fish in ponds (rotenone is derived from this root). In these ponds, frog species were significantly reduced. Rotenone is apparently done in late fall so as not to harm amphibians, but in water temperatures of 50 degrees or less, rotenone may persist in the water for 8 months or more. The studies which find that rotenone breaks down in a matter of days or even weeks are often done at water temperatures around 75 degrees, much higher than that of a most streams in Montana.

As stated in the EA: "The time for natural degradation (neutralization) of rotenone is controlled primarily by temperature, sunlight intensity during the application, and water chemistry at the site. Rotenone acts and degrades faster in warmer water (Horton 1997). In California, studies have shown that rotenone completely degrades within 1-8 weeks within the temperature range of 50-68F (10-20C) (CDFG 1994; Siepmann and Finlayson 1999). The aforementioned studies monitored breakdown of rotenone in standing waters. In running waters, rotenone would break down more rapidly because of hydrolysis (breakdown through reaction with water) and photolysis (breakdown by sunlight; Cheng et al. 1972)." Additionally, rotenone conveyed to the bottom of the project area would be neutralized with potassium permanganate.

Studies which have shown rotenone persisting for 8 months or more were in very cold high mountain lakes. In addition, the substance persisting was a less toxic breakdown product rotenolone.

A project completed in October may still have deleterious effects long into April through June, the start of the Columbia spotted frog breeding season. Then because many insect species would have been killed, food sources become significantly reduced. It takes a Columbia spotted frog 4-6 years to mature and they only lay eggs at two to three year intervals. How quickly does that species return? If that is of no consequence, who are we to say what species should or should not exist in an ecosystem? Have we not done that enough? As a former biologist, my leaning is toward maintaining whole ecosystems.

In the very unlikely event that amphibians are eliminated from the treated area of stream, efforts will be made to re-introduce them from nearby populations. This project is limited to 2.5 miles of stream. Much of the Jumping Creek drainage will not be treated with rotenone; rotenone will not be applied throughout the entire stream ecosystem.

What about the secondary effects on the ecosystem once an aquatic system has been treated? How are the dippers, osprey, eagles, muskrats, otters, etc directly or indirectly affected by a rotenone project covering an entire drainage? What species will be affected by a lack of invertebrates in their prime habitat? How will species be developmentally affected by a neurotoxin like rotenone? There is a definite lack of research on these secondary effects of rotenone.

As stated in the EA: “Birds and mammals in the project area may be exposed to rotenone through direct exposure, drinking of piscicide-treated water, or by eating fish killed by piscicides. Bioassays on mammals indicate that at the proposed concentrations, rotenone would have no effect on mammals that drink the treated water (Schnick 1974). In addition, large and small mammals that eat fish killed during the project would be exposed to a thousandth of the median lethal dose (EPA 2007). The hazard associated with the short-term exposure to drinking water containing rotenone is very small because of the low concentration of rotenone used in the treatment and the rapid breakdown and dilution of rotenone. Moreover, rotenone was used for many years to control grubs on the backs of dairy and beef cattle. Because fish populations in Jumping Creek will be reduced for at least 5 years, there will be temporary impacts on any fish-eating birds and mammals present in the project area, such as great blue heron, merganser, osprey, and mink. Also, if temporary reductions in aquatic invertebrates occur, insectivorous species such as American dippers may be impacted to the extent that they rely on aquatic invertebrates for food. Aquatic invertebrate communities typically recover rapidly from disturbance and impacted birds and mammals are mobile and would likely emigrate to nearby habitats until full recovery of the aquatic community. Treatments would be timed so that livestock grazing allotments adjacent to the proposed treatment area are unoccupied. If this is not possible, every effort would be made to work with allotees to minimize exposure of livestock to treated waters (e.g. temporary movement to adjacent pastures, etc.). In addition, the public would be restricted from entering treated waters until sentinel fish show no sign of stress for 4 hours.”

This project is limited to 2.5 miles of stream. Much of the Jumping Creek drainage will not be treated with rotenone. Rotenone has been used for years with no indication of secondary effects on wild populations of mammals. Focused laboratory or field research on secondary effects of rotenone used at low concentrations in piscicide treatments are not available.

"Cleansing" an entire system does have the effect of allowing invasive species to colonize. In fact, invasive species are usually the first to colonize a species-poor area, paving the way for even more invasive species. This is well-known by those working on eliminating invasive plants.

A fish barrier has been constructed at the downstream end of the treatment area. Fish barriers have been used in several streams in northcentral Montana to prevent movement of non-native species into westslope cutthroat occupied habitat. Rotenone is selective to gill breathing organisms. Aerially dispersed non-native invertebrates may exist but it is far more likely that invertebrate colonizers will be locally derived native species. The only non-native invertebrate that could invade Jumping Creek is the New Zealand mud snail, and these could only be transferred by fisherman or workers that do not clean their equipment or boots. We know of no non-native amphibians that could take advantage of the treatment and invade Jumping Creek.

The method for evaluating the presence of rotenone in the water is archaic and unscientific. Springs in streams allow for varying concentrations of rotenone and therefore it is difficult to know the exact concentration of rotenone in the creek without testing the water. Using "sentinel fish" in a bucket with holes to see whether the fish die is not acceptable. Due to my concerns with rotenone treatments as listed above in this letter, this protocol is absurd to me for two reasons: first there is no quantitative chemical analysis performed to determine the concentration of rotenone and the accompanying synergists like Naphthalene or N-Methylpyrrolidone. Second, the protocol is fish-centric as no other taxa are tested.

In previous projects water samples have been collected in downstream areas and tested for rotenone and its constituents. Depending on 308 (DEQ) permitting requirement this project may include collection of water samples. In California, researchers have measured persistence of rotenone and other organic compounds in water and sediment treated with 2ppm rotenone formulation. Persistence for most compounds has been found to be less than 2 weeks and no more than 9 months (Finalyson 2000). Fish can be considered more sensitive than many other taxa and thus can be considered a good indicator species.

Rotenone projects often don't work. There may be eggs in the gravel that didn't get treated or fish that managed to survive by swimming to a side channel or spring-fed area. The project will likely need to be repeated- an expensive and wasteful proposition. You can guarantee we will change the species composition and that there will be indirect effects to other organisms. How many times on average must treatments be repeated over time to make them "successful"? Many veterans of rotenone projects will say that the projects need to be repeated every 10 years or so.

Rotenone projects in Montana and other states have worked well in the past and have helped prevent listing of native trouts under the Endangered Species Act. Generally multiple treatments are required to remove any fish that escape into springs or make it through the first treatment. Most projects are complete after two treatments but one treatment may suffice. Rotenone projects in large drainages/water bodies (i.e. Davis Lake) need to be repeated because of illegal transfers of fish, missed fish, or transfers of fish by birds or other wildlife. In controlled small projects like Jumping Creek treatment should not have to be repeated unless an illegal transfer of fish occurs. Many of the remaining pure populations of westslope cutthroat trout in Montana have existed in small headwater drainages behind waterfall barriers for greater than 100 years. This project has the potential to be no different over the long term.

I write this with great respect and appreciation for the work fisheries biologists do, because I know they do more than rotenone projects. I just disagree with the long-standing tradition of using piscicides.

The use of piscicides is not based on tradition but on necessity. In even moderately complex habitats (e.g. woody debris, beaver activity) removing non-

native fishes with electrofishing is impossible. We have used electrofishing to remove brook trout from several streams in northcentral Montana over the past 7 years. These projects have been successful, but required an enormous amount of effort (3-5 years of two pass electrofishing). These streams were less than a mile in length, simple cobble dominated, with no undercut banks or woody debris.

Our native trout are in trouble in part because of well- meaning fish biologists in the past doing science that was cutting- edge for the time. Is our current scheme to manage fisheries using chemical treatments something that will hold up in 50 years? Given the current research in toxicology, my guess is that it won't.

Restoration can only be based on the best available science. FWP believes that piscicides if used properly are an important tool for restoration of native fishes.

Citizen comment letter made on 7/1/08 (Comments in bolded text):

"…Since this is such a short stretch-2.5 miles – it seems ideal for this purpose. Here's an out-of-the-box idea. How about having a "fish it out" weekend with fisherman invited to catch and keep everything except cutthroats? Or would such a herd of folks destroy the stream bank resources?"

The Jumping Creek brook trout population was small and stunted prior to suppression. Brook trout were suppressed with electrofishing over the last three years to try to buoy the small population of westslope cutthroat trout. Remaining brook trout are of small size (<4 inches). In addition, because of difficult angling condition, the current 20 fish limit for brook trout would not be reached by most anglers.

Decision

Based on the Environmental Assessment, public comment, and the high risk of extinction of genetically pure WCT in the Smith River drainage, it is my decision to proceed with Alternative 2, the proposed action, to remove the existing fish populations of exotic eastern brook trout in the stream reach above the artificial fish barrier on Jumping Creek and reestablish the pure strain population of WCT after the chemical rehabilitation project is completed, which would protect and expand a unique pure population of WCT. There are no modifications necessary to the Draft Environmental Assessment based on the two public comments. The Draft Supplemental Environmental Assessment, together with this Decision Notice, will serve as the final document for this proposal. This alternative provides the best opportunity to benefit the conservation and restoration of WCT in Montana, help relieve ESA listing pressure and also serve as to illustrate the State's commitment to perpetuating native fish species.

This project will help pure WCT in the Smith River drainage by expanding their secure distribution an additional 2.5 miles, or approximately 30 percent. I find there to be no significant impact on the human or physical environment associated with this project, except to help ensure the long-term persistence of pure, locally adapted WCT in the Smith River Basin. Therefore, I conclude that the Environmental Assessment is the appropriate level of analysis, and that an Environmental Impact Statement is not required.

_Gary Bertellotti /s/_____ Date:_August 8, 2008____

Gary Bertellotti
Region 4 Supervisor
Great Falls, Montana